

Maryland in Europe Graduate Programs
Bowie State University

Computer Concepts - INSS 510

This is a tentative version and it is subject to changes
Last modified - 13 December 2002

Education Center 20 Jan 2003-14 Mar 2003
Location: Geilenkirchen, Germany Mondays & Wednesdays
18:30-21:30 hrs

Lecturer: Cristina Ethington
BSEE Federal University of Rio de Janeiro
MS Polytechnic University of Madrid

Mailing Address: PSC 1, BOX 2512 APO AE 09009
E-mail address: cethington@faculty.ed.umuc.edu

Standard policy: please do not send e-mail with attachments.
Subject line should begin with INSS 510 followed by the subject itself. Please choose meaningful subject titles.
E-mail messages will be sorted according to the subject line. If you fail to follow this convention I may not get to your e-mail in a timely manner

Class Web-Site: <http://cris-ethington.de>

Office hours: By appointment.

Ph # Geilenkirchen Education Center
Commercial: (02451-64510)

Please leave a message with your name and a phone number I can contact you at.

Course Description:

Prerequisites: Undergraduate programming and college algebra, or permission of the instructor.

This course provides an overview of basic computer concepts as they apply to MIS professionals. Emphasis is on basic machine architecture including data storage, manipulation, and the human-machine interface including the basics of operating systems, algorithms and programming languages. In addition, the basic concepts of data organization including data and file structures are examined. Emerging trends in computer technology and their impact on organizational information systems are also discussed.

Course Goals/Objectives:

Goals: Upon completion of the course, participants should:

1. Understand basic principles of computer architecture
2. Understand major operating system concepts, including the interrelationships between operating systems and computer hardware
3. Understand concepts of programming languages
4. Understand computer logic and data representation
5. Be conversant with the terminology describing computer hardware and software
6. Understand how computer peripherals work
7. Understand basics of network architectures
8. Understand new developments in computer technology

Objectives: At the conclusion of this course the student will be able to:

1. Define the basic terms and processes related to computer systems architecture
2. Discuss components of an operating system
3. Describe the mechanisms by which an operating system manages hardware and software resources
4. Describe progression of operating system development
5. Define the relationship between application and system software
6. Describe the various types of programming languages
7. Describe the processes of translating and executing a program
8. Describe the process for developing applications
9. Describe basic methods of data representation
10. Describe the characteristics of data storage technology and how it influences the performance of computer systems
11. Describe the use of buffers and caches to improve computer system performance
12. Describe the use of data compression to improve computer system performance
13. Describe the concepts of file systems
14. Describe the characteristics and implementation of input and output devices
15. Describe the basic concepts of communication protocols
16. Summarize the advantages and disadvantages of distributed computing systems
17. Describe the technological trends in computer development
18. Discuss ethical issues in computing
19. Research current topics in computing

Text: *The Architecture and Computer Hardware and System Software*
By Irv Englander

Grading Information: Grades for this course will be assigned as follows:

A	92% +
B	80 – 91%
C	70 – 79%
F	Below 70% F(a) or regular non-attendance F(n)

Course Requirements: Grades for this course will be based on a 1000-point scale:

Midterm Examination (Take home)	300
Final Examination (In-class)	300
Programming Project	100
Research Paper	200
Research Paper presentation	100

Student Responsibilities:

It is the students' responsibility to:

- Participate in class
- Read the chapters to be discussed prior to class - if possible
- Complete assignments on time
- Students are responsible for all material covered in class. If students miss a class, it is their responsibility to obtain the class notes from a fellow classmate.

Academic Policies: Please refer to the *UMUC Graduate Catalog 2002-2003*

Academic Dishonesty and Plagiarism will not be tolerated. Plagiarized papers, reports, or exams will receive a grade of zero. This would also apply to a student knowingly allowing another student to plagiarize their work.

Attendance: This is a very fast paced course and failure to attend class will likely result in a significant burden to keep pace with the course. If you miss a class try to study the materials scheduled for the class and get notes from a fellow student.

Make-up Examinations: Need to be arranged prior to absences unless caused by an emergency. In any case appropriate documentation will be required.

It is the student's responsibility to make an agreeable arrangement with the instructor prior to a missing deadline. Such arrangement must be in a written format (typed letter or e-mail).

Late Assignments - assignments are expected to be turned in on time. If a student is unable to submit the assignment on time due to work related circumstances or circumstances out of the student's control, then it is the student's responsibility to make an agreeable written arrangement with the instructor prior to the corresponding deadline.

Grades on assignments submitted after the due date will be reduced by according to the table below. Appropriate documentation will be required.

1-7 days late	- 10%
7-14 days late	- 20%
over 14 days late	- 40%

Keep a copy of all work submitted.

Teaching Philosophy

Par and parcel with attending classes is the effort students place when solving assignments.

Effort can be demonstrated by:

- following the assignment format as specified in the syllabus
- discussing problems with the instructor
- asking meaningful questions
- identifying suspected problems with programming assignments before approaching the instructor -- this helps students to think through a problem.

Research Paper

It needs to be well thought out and present the information at a level compatible with a graduate course. The paper should generally be 12-15 pages in length. It should be typed using double spacing and size 12 font. Add a cover page formatted as described in the programming assignment section. It does not need to be submitted in a folder but all pages must be stapled in the upper left corner. Keep a copy, as papers will not be returned but will be reviewed in class.

Topics will be assigned during the first week of the course.

Papers must include an introduction, conclusion, and bibliography.

Papers will be graded using the following criteria:

Technical Accuracy	35 %
Grammar & Spelling	15 %
Presentation (how well the concepts are presented)	40 %
Format	10%

Paper presentation – will be graded following the criteria below:

Did you deliver your message?	60%
How effectively did you get it across?	20%
Timeliness (appropriate use of time allotted)	20%

Programming Assignment

There will be 1 programming assignment in this course.

- Students are free to accomplish the assignment using the programming language of their choice
- Students are expected to fully test their program and analyze the results. If the results do not meet expected values, students should explain the reason why, by analyzing the algorithm used and trying to identify where potential problems could be.
- The programming assignment will be discussed in class.
- **It is highly recommended students be able to program at a level compatible with CMIS 140 or INSS 505.**

Programming assignments will be graded as follows:

Functionality (program works and meets specification)	10%
Proper code design	60%
Comments/Documentation	15%
Format	15%

About the Programming Assignment

The IS manager needs a diverse background to meet the communication needs of today's business. An understanding of business is needed for both effective communication with a customer and to help the customer determine his/her true IS needs. Knowledge of hardware is essential in designing compatible systems to meet these needs, which can be maintained or upgraded as needed. Software can enhance a weak system or defeat the most sophisticated hardware. As an IS Manager, you will need to combine all of these academic disciplines into a seamless knowledge base. This programming project is intended to reinforce the basics of programming and hardware architecture. The ultimate success of any system is the proper marriage of software and hardware, allowing both to operate at peak efficiency.

Course Schedule:

This is a tentative schedule and it is subject to changes

Class	Topics	Assigned readings/assignments due
1	<ul style="list-style-type: none">• Introduction to course procedures• Computer Systems• Number Systems	Chapter 1 Chapter 2
2	<ul style="list-style-type: none">• Data Formats• Representing Integer Data	Chapter 3 Chapter 4

3	<ul style="list-style-type: none"> Floating Point Numbers Programming Tools Programming Project – in class discussion 	Chapter 5 Chapter 18
4	<ul style="list-style-type: none"> An Introduction to Digital Computer Logic The Little Man Computer 	Supplementary Chapter 1 Chapter 6
5	<ul style="list-style-type: none"> The CPU and Memory Input/Output 	Chapter 7 Chapter 8
6	<ul style="list-style-type: none"> Computer Peripherals CPU Design and Organization 	Chapter 9 Chapter 10 (10.1-10.2)
7	<ul style="list-style-type: none"> More on addressing modes Modern CPU Processing Methods & Implementation Issues 	Chapter 10 (10.3-10.4)
8	<ul style="list-style-type: none"> Mid Term Exam (Take home) Modern Computer Systems 	Covers material through class 7 Chapter 11
9	<ul style="list-style-type: none"> The X86 Family The Power PC Clusters, Networks and Data Communications Communication Channel Technology 	Chapter 12 Chapter 13 Supplementary Chapter 2 Due: Programming Project
10	<ul style="list-style-type: none"> Introduction to Operating Systems 	Chapter 14
11	<ul style="list-style-type: none"> The User View of O/S 	Chapter 15 Mid Term Exam due
12	<ul style="list-style-type: none"> More O/S Concepts 	Chapter 16 Due: Research Paper
13	<ul style="list-style-type: none"> File Management 	Chapter 17
14	<ul style="list-style-type: none"> Research Paper Presentation 	
15	<ul style="list-style-type: none"> Course Evaluation Review for the Final Exam 	
16	<ul style="list-style-type: none"> Final Exam 	